The
Ballarat
Naturalist

November 2018

Field Naturalists' Club of Ballarat

"Bees, Beetles and more in an indigenous pollinator garden"

Linda Rogan, our guest speaker in October, provided us with a photographically excellent and scientifically well researched presentation on pollinators found in Linda and Peter's semi-indigenous garden and some of their nearby reserves at Briar Hill just north of Melbourne.   Linda described herself as a retired physio, citizen scientist and is currently the Editor of the Victorian Entomologist, the News Bulletin of the Entomological Society of Victoria. She professes an obsession with pollinators and especially native bees. We were treated to a most interesting talk based on the observations made and beautiful photographs taken of pollinator insects found in their small garden and reserves in nearby areas.

Linda's approach to her studies reminds me of Jean Henri Fabre, the famous French naturalist and self-taught entomologist who lived much of his life near Avignon in Provence during the 19th and early 20th Century. His wonderful descriptions of a wide variety of insects are today still fascinating to read but what is significant here is that what occupied his world were his country garden, the surrounding areas, the insects he loved and his observations of their behaviour and life cycles. This included studies of bees and bee-killers and he even took insect photographs with a glass plate camera mounted on a tripod!

Linda showed photos of and described the many pollinators in the garden especially on *Kunzea* bushes at this time of year (early October). They include *Simosyrphus grandiornis* an Australasian species of hoverfly (Grooming Hover Fly). Flies can be distinguished from the bees by the presence of one set of membranous wings (rather than two) and instead the presence of halteres, balancing organs used in flight. At her feet sitting on a *Wahlenbergia* (Austral Bluebell) she showed us another hover fly often mistaken for a native bee. Returning to the Kunzea we saw a third type of hover fly the Drone Fly, *Eristalis tenax* which originated in Europe. The last of the hoverflies with neatly overlapping wings and a characteristic red abdomen, *Psilota rubra rubra* looks more like a bee, in fact a native bee. Linda then showed us an *Exoneura* sp., a species of primitively eusocial (sub social) allodapine bees also with a red/brown abdomen. This genus of hymenopterans is commonly called reed bees as its species nests communally in pithy stems. The male we saw, and as Linda described it, has strange "googly" eyes compared to the female. The entrance to the nest in a pithy stem is blocked by one of the females with her flat abdomen. Usually the females of this genus do not construct separate brood cells and the larvae are fed progressively as they develop in the stem which reflects their sub social behaviour. (The only truly eusocial allodapine bee is the closely related *Exoneuralla tridentata*). Pollen is carried by the female *Exoneura.*

Linda then spoke to us about other pollinators. Butterflies (Lepidoptera) can also be pollinators although they are less numerous than dipterous flies and therefore less effective in pollination overall. The example she showed us was the Australian Painted Lady *Vanessa kershawii*. The Brown Flower Chafer beetle *Aphanestes decorticara* was a numerous species in her garden and quite hairy enough to carry pollen to achieve pollination. The Spotted Flower Chafer Beetle *Polystigma punctata* was much less common but a much more impressive beetle to photograph and view. The Jewel beetles were another group with beautiful elytra (wing covers) found in the garden especially species in the *Castiarina genus, C. hilaris, C. sexguttata* and *C.erythroptera*.

Linda then took us via her wonderful images to Alma Brown's Reserve in the Banyule Council area in Greensborough where as she said her infatuation with native bees began. (Alma Brown gifted her land to the Council in 1990 and the reserve has a Trust for Nature covenant over it) Linda admitted that up until 2008 she thought honey bees were Australian bees. She began photographing the insects on a Cassinia bush that was so densely covered with a species of insect that it appeared almost blackened and she sought help on their ID from Ken Walker from the Melbourne Museum. She learned from Ken that these were not winged ants (also hymenopterans) but in fact Halictid bees specifically *Homalictus punctatus*. (She has also seen them roosting on Casuarinas in her garden but not until 2016) The males roost together on branches and she was "chuffed" to be able photograph a smaller group of *Homalictus punctatus* on the Casuarina in her garden. In 2014 she managed to get an excellent shot of a female of this species and in 2013a mating pair that she also showed us. As a group Halictid bees are communal; also included in this group is the Lasioglossum genus.

These experiences caused Linda to start selecting plants for their garden that would attract native bees and other pollinators. They also stimulated her interest in learning about and observing native bees and other insect pollinators. Examples of plants included *Goodia lotifolia* an early blooming pea which attracted, in her photos, *Lassioglossum* sp. and *Leioproctus* another bee. *Eutaxia diffusa*, a pea attracted her first spring bee, a female *Trichocolletes* sp. (probably *venustus*).

She selected the tree *Angophora hispida* for late summer flowering and which even as a sapling was able to attract a reed bee probably *Exoneura angophorae*. From her experiences she believes that *Kunzea ericoides* is probably the most reliable bee attracting plant in their garden as well as being suitable for other pollinators. On this Burgan or *Kunzea ericoides* bush she found the first roosting bees in the garden and she showed close ups of roosting *Euryglossa ephippiatta*. In her photo of the males roosting was another species of smaller bee, one of the masked bees *Hylaeus ofarrelli*. She also showed us the black males with crooked antennae. She has observed and photographed the males which dart about seeking the female, which may be all black or a red saddle-back form. The males only stopped when they found a cooperative female. Photos of mating pairs with both forms of female were shown.

Linda also showed us a photo of *Euryglossa adelaidae* which is closely related to the above species. Other species on Burgan were *Lasioglossum bicingulatum* also found roosting under a Cherry Ballart in Brown's Reserve and *Lasioglossum peraustrale*; the second species a bee that is a remarkable mimic to a wasp species. *Lythrum salicaria* Purple Loosestrife is another good summer flowering plant which attracts the Blue Banded Bees; a group name description which embraces several species of *Amegilla*.

Linda's amazing collection of pollinator photos from this relatively small geographic area also included shots of bees associated with bee friendly habitat created by Peter her husband. Bee poles were made by drilling old red gum posts with holes of different diameters, depths and densities and setting them up vertically at different positions in the garden. These quickly attracted numbers of resin bees. Over a short period of time there were recorded 2 genera and 5 species nesting in the bee poles. Included were *Megachile (Hackeriapsis) oblonga* and *Megachile erythropa*. Other bees seen at the posts include *Exoneura* (reed bees) and the wasp-like *Hylaeus*, masked bees. The latter Linda was able to video and the bee behaviour recorded was particularly of interest to Ken Walker and Terry Houston both Australian bee gurus who had not witnessed it before.

Linda then showed us a very unusual wasp, a member of the *Leucospis* genus. This wasp is not often seen and has been little studied. What is known is that it has larvae that are carnivorous and they feed on the young of other wasp species and Megachilid bees. It has a long ovipositor that ensures the delivery of its eggs to achieve this. Linda showed another of her videos of *Megachile lucidiventris* the largest species found on the bee posts also having the loudest "buzz". She showed a graphic image of the Megachilid pupa being attacked by ants. As a result she tried anti-ant tape on the posts but found it didn't work for long.

To conclude her talk Linda took us on a pictorial tour of Karingal Creek just down the hill from their garden. This one of the best locations locally for spotting roosting bees especially in the cool of the early morning and in the evening crepuscular hour. Photos shown of a large male *M. lucidiventris* and several other roosting bee species illustrated why this is Linda's favourite spot for finding roosting bees especially in summer. The males of *M. lucidiventris* have a strange bent posture and whilst mating they place their forelegs over the eyes of the female. The most frequently seen male clusters are the green and gold Nomia bees *Lipotriches australica* and there was also a photo of a female of this species. Linda then explained to us the action of buzz pollination as practised by Blue Banded Bees and some other native bees such as *Lipotriches australica*. but Honey bees can't buzz pollinate. She showed us slides and videos of smaller *Lipotriches* species showing their blacker clusters and a close-up of a male *Lipotriches submoerens.* A slide of *Megachile ferox* showed the three clear identifying features of orange tip to abdomen, wide forelegs and flattened antennae tips. She demonstrated by slides how to distinguish male and female Blue Banded Bees, *Amegilla asserta,* the male having broad yellow facial bands and the female having narrow bands (Padil.gov.au shows this difference clearly). The last of the Karingal Ck. slides showed the beautiful but deadly Neon Cuckoo Bee *Thyreus nitidulus* which seeks out the unsealed nests of Blue Banded Bees and lays its eggs in anticipation that the emerging offspring will emerge before the Blue Banded Bee young emerge and consume all the pollen resources stored by the parent BBBs.

Linda left us all with the stimulating thought that at least some of us might now feel motivated to investigate pollinators in our neighbourhoods which by Linda and Peter's example includes our own gardens. Linda said she has yet to see and photograph Blue Banded Bees *Amegilla* sp. nesting in Victoria.

Now there is a challenge worth responding to!

[Article prepared by Andrew Arnold from his personal notes and slide notes prepared by Linda Rogan]

FOR FURTHER INFORMATION.
Web sites
Pollinators:
http://www.padil.gov.au (search under image libraries Australia pollinators)

Bees:
http://www.aussiebee.com.au (Australian Native Bee Research Centre – Anne and Les Dollin)

http://australiannativebees.com/N_Pictures.php (Photos)

ANbees@yahoogroups.com (Mainly sugar bag keepers chat)

http://beesbusiness.com.au/garden.html (Megan Halcroft NSW)

General:
Atlas of Living Australia http://ala.org.au (Phyla including Arthropoda, Class - Insecta)

www.bowerbird.com.au (Record your findings and photographs and this may help with your ID)

Books:
Bees
T.Houston (2018) Guide to Native Bees of Australia CSIRO [Available from FNCV (at discount for members)]

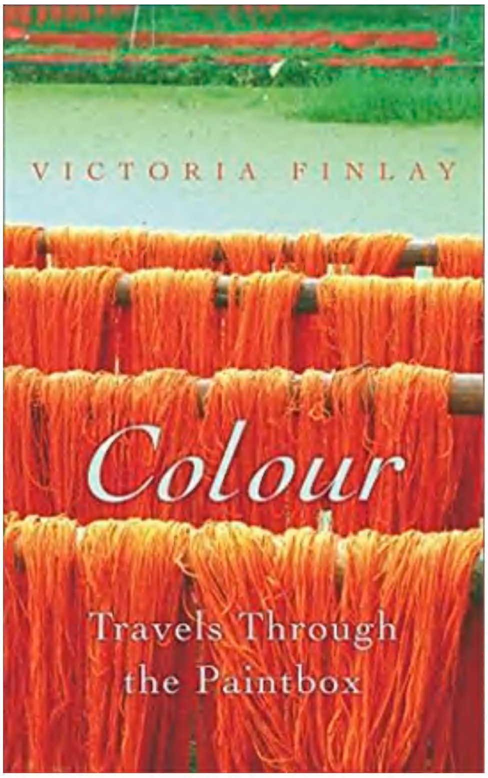
James Dorey (2018) Bees of Australia [A photographic Exploration] CSIRO

BOOK REVIEW

Colour: Travels through the paintbox

by Victoria Finlay (2007), Hodder & Staughton

Although just over 10 years old, *Colour* is a non-fiction classic, in my eyes. As it seeks to discover the origins of the colours of paint, the author weaves history, botany, exotic locations, magic and the mystery of detective stories into the narrative. For field naturalists, it seems a strange choice, but considering the range of subjects, many of which deal with the wonders of the natural world, it is indeed a natural fit.



Each chapter covers one colour and fully explores its origins, cultural history, development and application in arts, religion and fashion. The colours derive from natural substances including plants, minerals, animals and insects. “Ochre” takes place in Australia and recognises the uses, both ancient and modern of this mineral as a paint for ceremonial purposes by our first peoples. “Red” takes us on a journey through Central America and the insect that provided the best scarlet red colour, not just for paint, but for dyes used to colour the uniforms of the colonial British “redcoats”.

Plant-based pigments and dyes from indigo, saffron and madder provide colours of great beauty and historical significance. Colours derived from animals include red from cochineal insects (as mentioned above) and violet from snails (*Murex* sp.)in and around the Mediterranean.

Minerals provide white, black, blue and green as well as the different hues of ochre. Ranging across the world and across time, this is an extraordinary book that goes beyond bland description to tell stories full of interest and intrigue. It will keep you turning pages like a colonial explorer, aching to see what’s over the next hill.

Bill Elder

A day out at Illabarook
By Emily Noble

Twelve field naturalists gathered in very light precipitation on the Moonlight-Illabarook Road-side next to the Illabarook Rail Reserve on Sunday October 7. The reserve is a 28 hectare crown land reserve, one of more than 50 managed by Ballarat Environment Network since 2005. It was previously the home of the Illabarook Railway Station and goods shed, remnants of which can still be found across the site. The railway station lay between Rokewood and Berringa on the Colac-Ballarat railway line that operated from the late 1800's to the 1950's, transporting produce from townships in Victoria's south-west to Ballarat. It is now managed as a biodiversity reserve featuring lovely remnants of the now endangered Lower slopes Grassy Woodland ecological vegetation community, and has one of the best populations of Silver Banksias and Drooping Sheokes in the area.

Brief flora and bird surveys recently undertaken by contractors and volunteers in the reserve added more than 30 plants to the list of plant records gleaned from the last flora survey in 2002 and ten species to the bird list, and Emily was confident that with this many keen eyes scouring the site, yet more new species would be added to the plant and bird lists for the reserve, with plans to upload them into the Victorian Biodiversity Atlas soon, to form part of the State Government's official flora and fauna records.

Even before we left the roadside and moved into the reserve, Indra had added two new birds to the list: Black Kite patrolling the skies above us, and Pallid Cuckoo, with its delightfully ascending call. It dived regularly into the grassland to pick out some of the many woolly caterpillars (including *Pterolocera sp.*) for its morning tea and lunch.

Much of the morning was spent with our eyes directed towards the ground, keenly seeking new grasses, forbs and herbs, and especially new species of "inch flora", a term given to those plants that don't grow much bigger than an inch high and are thus commonly overlooked. With hand lenses, camera zoom lenses, field guides and lots of plant knowledge in the group, we managed to confirm to species level the identity of 15 plants that had only been identified to genus level previously and added another 16 new flora species to the list, many of which did fit into the "inch flora" category. These included the Rayless Daisy, *Brachyscome perpusilla*, the Scarlet or Pimpernel Sundew *Drosera glanduligera*, the multi-stemmed Grassland Sundew *D. hookeri* and Prickly Woodruff *Asperula scoparia*.

Other tiny plants that were growing in profusion included the Moss Sunray *Hyalosperma demissum*, Woolly Heads *Myriocephalus rhizocephalus*, Dwarf Aphelia *Aphelia pumilio* and Small Wrinklewort *Siloxerus multiflorus*. A Black Wallaby *Wallabia bicolor* was also spotted by several people.

The prolific Cranberry Heath *Astroloma humifusum* were covered in maturing fleshy fruits, almost ripe for an emu's lunch, and all the while, new birds were being spotted and heard. A Kestrel, Yellow-faced Honeyeater, Skylark, Dusky Woodswallow, Yellow Thornbill and Yellow-rumped Thornbill were all added to the bird list. Of the 36 bird species recorded at the reserve, 25 were seen or heard. With Linda and Peter Rogan in our midst, we were a little disappointed that the temperature wasn't warm enough to encourage the native bees out from their varied roosts.

After lunch, we headed to the north-east corner of the Parks Victoria -managed Illabarook Grassland Flora Reserve, bounded by sulphur-yellow flowering Canola fields full of elusive Stubble Quail. The call of the Brown Songlark was heard and more skylarks spotted, along with Blue-winged Parrots and a Brown-headed Honeyeater. A couple of lovely examples of Yam Daisy were photographed not far from the entrance, along with a dense clump of Golden Moth Orchids, species as yet undetermined.
The locally uncommon heath, Bitter Cryptandra *Cryptandra amara* was flowering beautifully as were the Yellow Stars, but the Blue Stars and Sundew flowers that had been enjoyed earlier in the week on a warm day were all tightly wrapped up against the chilly breeze.

La Trobe University researchers believe that a savanna vegetation community would once have been present on this site and others throughout the western plains of Victoria, so copses of various tree species including Drooping Sheoke *Allocasuarina verticillata* have been planted as seed orchards throughout the reserve. Recruitment trials for Silver Banksias *Banksia marginata* have also been undertaken, and are demonstrating the challenges of re-establishing these species in the landscape.

In November, the lemon-yellow flowers of the Twisted Sun-orchids *Thelymitra flexuosa* will be dotted throughout these grasslands amongst the Tall Sundews *Drosera auriculata*, Milkmaids *Burchardia umbellata*, Blue Pincushions *Brunonia australis* and various Sun orchids including the Salmon Sun-orchid *Thelymitra rubra*. The site will be well worth a return visit.

Illabarook Rail Reserve
Updated Grassy Woodland flora list, October 2018

	Scientific Name	Common Name
1	Acacia mearnsii	Black Wattle
2	Acacia paradoxa	Hedge Wattle
3	Acacia pycnantha	Golden Wattle
4	Acaena echinata	Sheep's Burr
5	Aphelia gracilis	Slender Aphelia
6	Aphelia pumilio	Dwarf Aphelia
7	Allocasuarina muelleriana	Slaty Sheoak
8	Allocasuarina verticillata	Drooping Sheoak
9	Anthosachne scabra	Common Wheat-grass
10	Aristida ramosa	Purple Wiregrass
11	Arthropodium sp. (fimbriatum?)	Nodding Chocolate Lily
12	Arthropodium strictum	Chocolate Lily
13	Asperula scoparia	Prickly Woodruff
14	Astroloma humifusum	Cranberry Heath
15	Austrostipa scabra	Slender Spear-grass
16	Austrostipa sp.	Spear-grass
17	Banksia marginata	Silver Banksia
18	Bossiaea prostrata	Creeping Bossiaea
19	Brachyscome perpusilla	Rayless Daisy
20	Brunonia australis	Blue Pincushion
21	Burchardia umbellata	Milkmaids
22	Caesia calliantha	Blue Grass-lily
23	Calocephalus citreus	Lemon Beauty-heads
24	Calocephalus lacteus	Milky Beauty-heads
25	Calotis anthemoides	Cut-leaf Burr-daisy
26	Carex appressa?	Tall Sedge

27	Centella cordifolia	Centella
28	Centrolepis aristata	Pointed Centrolepis
29	Centrolepis strigosa	Hairy Centrolepis
30	Chamaescilla corymbosa	Blue Squill
31	Cheilanthes sieberi	Narrow Rock-fern
32	Chrysocephalum apiculatum s.l.	Common Everlasting
33	Convolvulus angustissimus ssp. omnigracilis	Australian Bindweed
34	Convolvulus erubescens spp. agg.	Pink Bindweed
35	Crassula decumbens	Spreading Crassula
36	Crassula sp.	Crassula
37	Cryptandra amara (C. tomentosa var. 2)	Bitter Cryptandra
38	Cynoglossum suaveolens	Sweet Hound's-tongue
39	Deyeuxia quadriseta	Reed Bent-grass
40	Dianella revoluta var. revoluta	Black-anther Flax-lily
41	Dichelachne crinita	Long-hair Plume-grass
42	Dillwynia sericea	Showy Parrot-pea
43	Diuris chryseopsis	Golden Moth Orchid
44	Diuris spp.	Tall Golden Moth Orchid
45	Drosera aberrans	Scented Sundew
46	Drosera glanduligera	Pimpernel Sundew
47	Drosera hookeri	Grassland Sundew
48	Drosera macrantha	Climbing Sundew
49	Drosera auriculata (no rosette)	Tall Sundew
50	Drosera peltata (rosette)	Pale Sundew
51	Eleocharis acuta	Common Bog-sedge
52	Eragrostis brownii	Love Grass
53	Eryngium ovinum	Blue Devil

54 Eucalyptus ovata	Swamp Gum
55 Eutaxia microphylla	Common Eutaxia
56 Gahnia radula	Thatch Saw-sedge
57 Geranium ciliocarpum (sp. 2)	Variable Crane's-bill
58 Gonocarpus tetragynus	Common Raspwort
59 Goodenia geniculata	Bent Goodenia
60 Goodenia lanata	Trailing Goodenia
61 Goodenia panniculata	Branched Goodenia
62 Goodenia pinnatifida	Cut-leaf Goodenia
63 Haloragis heterophylla	Varied Raspwort
64 Hibbertia riparia	Erect Guinea-flower
65 Hyalosperma demissum	Moss Sunray
66 Hypericum gramineum	Small St John's Wort
67 Juncus amabilis	Hollow Rush
68 Juncus holoschoenus	Joint-leaf Rush
69 Juncus pallidus	Pale Rush
70 Juncus subsecundus	Finger Rush
71 Kennedia prostrata	Running Postman
72 Lachnagrostis filiformis	Common Blown-grass
73 Lepidosperma curtisiae	Little Sword-sedge
74 Lepidosperma laterale	Sword Sedge
75 Leptorhynchos squamatus	Scaly Buttons
76 Leucochrysum albicans s.l.	Hoary Sunray
77 Lissanthe strigosa subsp. subulata	Peach Heath
78 Lobelia pratioides	Poison Lobelia
79 Lomandra filiformis ssp. coriacea	Wattle Mat-rush
80 Lomandra nana	Dwarf mat-rush
81 Luzula meridionalis	Common Woodrush
82 Lythrum hyssopifolia	Small Loose-strife

83	Microlaena stipoides var. stipoides	Weeping Grass
84	Microtis arenaria	Notched Onion-orchid
85	Microtis parviflora	Slender Onion-orchid
86	Microtis unifolia	Common Onion-orchid
87	Millotia tenuifolia	Soft Millotia
88	Myriocephalus rhizocephalus	Woolly Heads
89	Oxalis perennans	Grassland Wood-sorrell
90	Pauridia vaginata	Yellow Star
91	Pimelea curviflora	Curved Rice-flower
92	Pimelea glauca	Smooth Rice-flower
93	Pimelea humilis	Common Rice-flower
94	Plantago gaudichaudiana	Narrow Plantain
95	Plantago varia	Variable Plantain
96	Poa sieberiana	Grey Tussock-grass
97	Pseudognaphalium luteoalbum	Jersey Cudweed
98	Pterostylis parviflora	Tiny Greenhood
99	Ptilotus erubescens	Hairy Tails
100	Ptilotus macrocephalus	Feather Heads
101	Rumex brownii	Slender Dock
102	Rumex dumosus	Wiry Dock
103	Rutidosis leptorhynchoides	Button Wrinklewort
104	Rytidosperma duttonianum	Brown-back Wallaby-grass
105	Schoenus apogon	Common Bog-sedge
106	Senecio glomeratus	Annual Fireweed
107	Senecion quadridentatus	Cotton Fireweed
108	Siloxerus multiflorus	Small Wrinklewort
109	Solenogyne dominii	Smooth Solenogyne
110	Stackhousia monogyna s.l.	Creamy Candles
111	Stylidium armeria	Trigger Plant

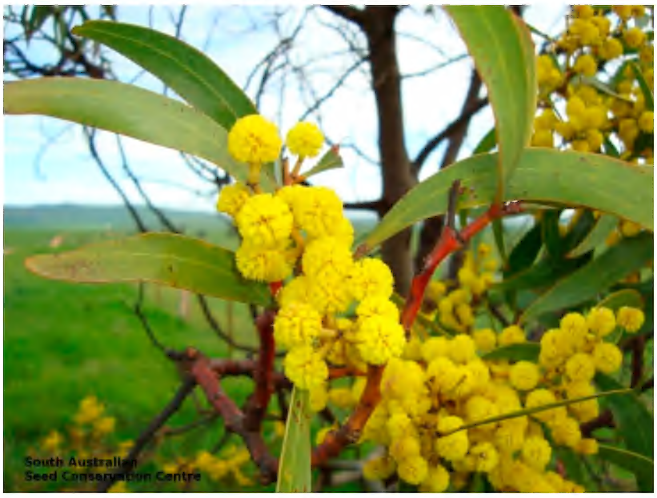
112	Stylidium graminifolium	Grass Trigger-plant
113	Thelymitra pauciflora s.l.	Slender Sun-orchid
114	Thelymitra rubra	Salmon Sun-orchid
115	Thelymitra sp. (ixioides or juncifolia)	Sun Orchid
116	Themeda triandra	Kangaroo Grass
117	Thysanotus patersonii	Twining Fringe-lily
118	Tricoryne elatior	Yellow Rush-lily
119	Triglochin nana	Dwarf Arrow-grass
120	Triptilodiscus pygmaeus	Dwarf Sunray
121	Vittadinia muelleri	Narrow-leaf New Holland Daisy
122	Wahlenbergia communis	Tufted Bluebell
123	Wahlenbergia luteola	Bronze Bluebell
124	Wahlenbergia multicaulis	Branching Bluebell
125	Wurmbea dioica	Common Early Nancy

Friday December 7th is a special members night.

The meeting will feature members' highlights from 2018.

Be prepared to tell everyone about your favourite moment, event, creature or place.
Anything related to nature and the environment that has inspired you this year.

Plants from the Illabarook Plant List

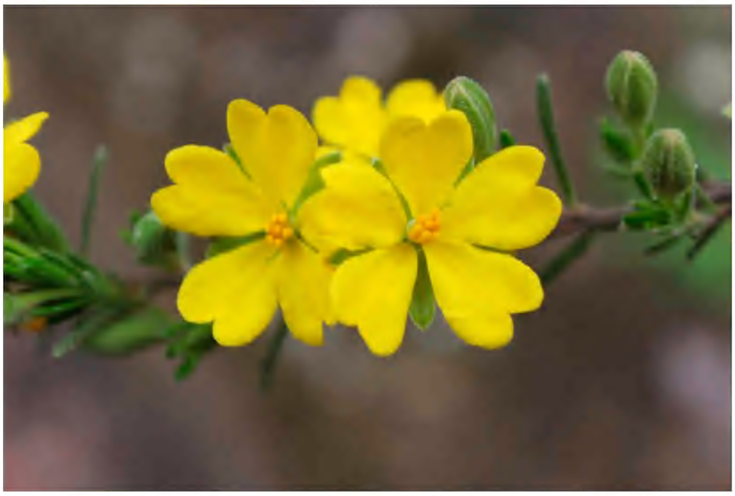


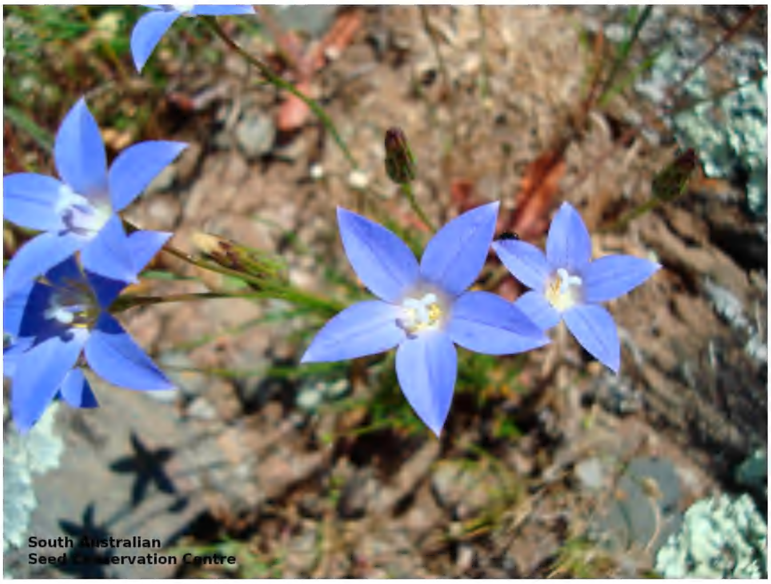
#3. Acacia pycnantha

(Golden Wattle)

#64. *Hibbertia riparia*

(Erect Guinea-flower)





#123. *Wahlenbergia luteola*

(Bronze Bluebell)

CALENDAR 2018

November

Fri 2 ***Stella Bedggood Memorial Lecture***
Effects of Urbanisation on the Tawny Frogmouth
presented by Dr. Marian Weaving, Monash University
Sun 4 Excursion to *Enfield State Park*
joint field trip with Geelong FNC, led by Emily Noble, FNCB

Tues 27 Committee meeting at Andy Arnold's

December

Fri 7 *Field Nat's highlights of 2018* - FNCB Members
Sun 9 Excursion to *Yarrowee River and Gong Gong Reservoir*
led by Fran Hanrahan, FNCB

Committee

President	John Gregurke
Vice Pres	Fran Hanrahan
Secretary	Emily Noble
Treasurer	Les Hanrahan
	Andy Arnold
	Bill Elder
	Val Hocking
	John Petheram
	Elspeth Swan

Correspondence: PO Box 328W, Ballarat West, 3350
Email:Secretary:- Emily Noble
Editors: Fran Hanrahan
Bill Elder

Website: http://fieldnatballarat.wordpress.com

Club email: ballaratfnc@gmail.com

Meetings are held at Federation University Gillies St Campus on the first Friday of the month at 7.30pm.
Excursions: Leave from the carpark of Federation University Gillies St Campus at 9.30 am, unless otherwise advised.

A monthly publication of the Field Naturalists' Club of Ballarat Inc.
Incorporation # A0014919P ABN 13 150 403 135